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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,831	11/20/2003	Hironori Kakiuchi	890050.449	8570

500 7590 12/01/2008

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EXAMINER	
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ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
12/01/2008	PAPER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/717,831
Filing Date: November 20, 2003
Appellant(s): KAKIUCHI ET AL.

Jason T Evans (57,862)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 11, 2008 appealing from the Office action mailed March 13, 2008. The final office action was returned by the postal service on March 17, 2008 and remailed on September 03, 2008, but the appellant accessed the Action via PAIR. The appellant states in the correspondence of September 12, 2008

that they were not harmed by the return of the first mailing of the final office action and wish to continue with the appeal.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal: applications containing related subject matter are known to the examiner to be currently under appeal to the Board of Appeals and Interferences.

10/406109 Examiner's Answer on 12/27/07 (undocketed)

10/748979 Examiner's Answer on 09/26/08 (undocketed)

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

GROUNDS OF REJECTION NOT ON REVIEW

The following grounds of rejection have not been withdrawn by the examiner, but they are not under review on appeal because they have not been presented for review in the appellant's brief.

A) Claims 1,2,7,10,13,16,17,19 and 22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/684981 (US 2004/0076907).

B) Claims 1-3,7,10,13,16,19,22 and 25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/764805 (US 2004/0157158) in view of Sakaue et al. '587 or Uno et al. '239.

C) Claims 1-3,7,10,13,16,19,22 and 25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of copending Application No. 10/792083 (US 2004/0174804) in view of Sakaue et al. '587 or Uno et al. '239.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,682,321	Takaoka et al.	07/1987
2002/0168587	Sakaue et al.	11/2002
2001/0021160	Shuy et al.	09/2001
Prepublications of applications relied upon in unappealed obviousness double patenting rejections		
20040076907	Inuoe et al.	04/2004
2004/0157158	Kakiuchi et al.	08/2004
2004/0174804	Kakiuchi et al.	09/2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A) Claims 1-3,7,10,13,16,19,22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuy et al. '160, in view of Sakaue et al. '587 and Takaoka et al. '321

Shuy et al. '160 teach in embodiment 4, a medium comprising a polycarbonate substrate, a ZnS-SiO_2 layer, a transparent Si first recording layer, a reflective Si-Au second recording layer and a ZnS-SiO_2 layer. The ZnS-SiO_2 layers are thermal manipulation layers [0030]. The reflective recording layer may be Ag, Al, Au, Pt, U, IN, Sn, W, Ir, Re, Rh or Ta [0027]. The transparent recording layer may be Si, Ge, GaP, GaAs, InAs, …[0026].

Sakaue et al. '587 in the recording medium of working example 1, where Ta_2O_5 sputtered in a mixture of Ar and N_2 to form the barrier layer [0061] between the recording layer and the reflective layer or dielectric layers. [0036,0054-0062]. The barrier layers may be other oxynitrides, including TiON [0036] and are provided between the recording layer and dielectric layers. The use of other materials including GeON, SiON or AlON in place of the TaON is disclosed. [0068]. See also example 3, and the examples described in table 3 [0079-0089]. The use of TaON yields a better signal amplitude, reduced corrosion and improved thermal conductivity (heat dissipation). [0072-0073].

Takaoka et al. '321 (US equivalent of JP 60-160036 cited by appellant) teaches optical recording media where the recording layer is a bilayer which is alloyed upon irradiation. Useful first layer materials are Ge,Te, Bi, Tl and alloys thereof and useful second layer materials are different from those of the first layer and may be selected from Te, Bi, Sb, Ag, In and alloys thereof. (2/49-63). Figures 9 and 10 show embodiments where there are two recording layers, which doubles the recording capacity of the media. (4/60-5/9).

It would have been obvious to modify the cited examples of Shuy et al. '160 by using Ta-O-N as thermal manipulation layers or the TiON barrier layers disclosed at [0036] in place of a portion of the thickness of the $ZnS\text{-}SiO_2$ layers directly adjacent the recording layer with a reasonable expectation of improving the performance characteristics based upon the disclosure of Sakaue et al. '587 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10. Further it would have been obvious to use Si or Ge for the first recording layer and Cu and alloys thereof with Al, Ag or Sn for the second layer based upon the direction within Shuy et al. '160 to these materials and the direction within Takaoka et al. '321 to the use of alloys in each of the layers.

The addition of Takaoka et al. '321 addresses the multiple recording layer limitations set forth in claim 1. The replacement of at least a portion of the ZnS-SiO_2 layers on both sides of the recording composite places the recited layer on the light incident side of the recording composite. The advantages in the transmissivity of the dielectric layers seems to be at 6-10% [0173] for tantala and 1.7 to 4,5 for titania [0187]. This is not recited in the claims, but should be. With respect to the relative performance of the media (example 3), there seems to be an optimization in the thickness of the dielectric layers and the appellant might consider either including limitations stating thicknesses or minimum performance to exclude the prior art of record.

While the examples of Sakaue et al. '587 discloses the use of the oxynitride layers as a barrier layer on **both** sides of the recording layer as it is a barrier layer, irrespective of what may be illustrated or discussed in an example. The claims do not preclude the use of the oxynitride layers on both sides of the recording layer due to the use of open "comprising" language in the claims and the rejection discusses placing them between the recording layer and the dielectric layers to prevent migration of materials into or out of the recording layer as taught by Sakaue et al. '587. Claim 3 recites that the dielectric is ZnS-SiO_2, so the statement of the rejection and the teachings of the references address the embodiments of the claims, specifically where a TiON or TaON layer is between the recording layer and the ZnS-SiO_2. The arguments of the appellant are incongruent with the claims and fails to appreciate the statement of rejection. While Takaoka et al. '321 may address the recording layers from different

sides, there are no layers between the recording layers which would preclude both being addressed from one side and the Shuy et al. '160 reference does not include a non-alloying reflective layer, so light can be incident from either side. The claims now also recite this.

B) Claims 1,2,7,10,13,16,17,19 and 22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/684981 (US 2004/0076907) .

It would have been obvious to use the dielectric layers described in claims 1 and 2 in the claimed optical recording media of 10/684981 , but having different compositions and including additives to the Cu layer (cl 4).

This is a provisional obviousness-type double patenting rejection.

(appeal 12/12/2007)

The appellant argues that as allowance of the instant application has not been reached, the terminal disclaimers need not be filed. This position is reasonable, but would delay allowance if those were the only remaining issues. The appellant also argues that the prosecution of at least some of the other applications is behind that of the instant application, so they would not issue later. This position neglect the fact , that while the PTO controls the allowance of the application, it has no control over delays in issuance due to other factors, such as the speed at which fees are paid, and so it can easily be envisioned that the order of issuance would differ from the order of allowance.

The claim 1 of 10/684981 allows the first and second dielectric layer to be on the same side.

C) Claims 1-3,7,10,13,16,19,22 and 25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/764805 (US 2004/0157158) in view of Sakaue et al. '587 or Uno et al. '239.

It would have been obvious to modify the claimed optical recording media of 10/764805 by using Ta-O-N as the first dielectric layers on both sides of the recording layer (claim 7) with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239.

This is a provisional obviousness-type double patenting rejection.

Final rejection 04/04/07

The response above is relied upon as no separate arguments were directed at this rejection.

D) Claims 1-3,7,10,13,16,19,22 and 25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of copending Application No. 10/792083 (US 2004/0174804) in view of Sakaue et al. '587 or Uno et al. '239.

It would have been obvious to modify the claimed optical recording media of 10/612615 by using Ti-O-N as one of the light transmission layers, in place of TiO with a

reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239.

This is a provisional obviousness-type double patenting rejection.

Nonfinal rejection 04/05/07

The response above is relied upon as no separate arguments were directed at this rejection.

(10) Response to Argument

The appellant argues on pages 4 and 5 of the response that the dielectric layer "containing oxide as a primary component and added nitrogen" is not taught or rendered obvious by the combination of Shuy et al. '160, in view of Sakaue et al. '587 and Takaoka et al. '321. The appellant argues that the TAON dielectric is only disclosed adjacent to the reflective layer, which is not the light incident side of the recording layer and therefore the benefit of preventing corrosion of the Ag reflective layer described by Sakaue et al. '587 would not be realized if the layer were on the light incident side. The appellant argues on page 6, that the second dielectric which is different from that layer "containing oxide as a primary component and added nitrogen" and having a lower thermal conductivity than the first dielectric layer is not taught by the combination of references.

In the combination of Shuy et al. '160, in view of Sakaue et al. '587 and Takaoka et al. '321 the examiner has held that it "would have been obvious to modify the cited examples of Shuy et al. '160 by using Ta-O-N as thermal manipulation layers or the

TiON barrier layers disclosed at [0036] in place of a portion of the thickness of the ZnS-SiO_2 layers directly adjacent the recording layer with a reasonable expectation of improving the performance characteristics based upon the disclosure of Sakaue et al. '587". Therefore on both sides of the recording bilayer, there would be a Ta-O-N or TiON layer and a ZnS-SiO_2 and this embodiment is embraced by the coverage sought due to the use of open "comprising" language in the claims. The problem associated with the Ag layer is due to its reaction with sulfur (S) as discussed at [0012] of Sakaue et al. '587. The use of the interface layer between the recording layer and first and the second dielectric layers is taught at [0067]. Therefore the reference renders obvious embodiments where both an oxynitride layer and a ZnS-SiO_2 layer are on each side of the recording layer. With respect to the TaON embodiment, the examiner points out that it would be desirable to prevent the reflective recording layer of Ag of Shuy et al. '160 from being corroded by the sulfur migrating form an adjacent ZnS-SiO_2 layer and so for the case where the Ag is the layer closer to the substrate (as the media are adhered face to face, rather than through the support in the media of figure 10 of Takaoka et al.), the benefit would be realized and there would be motivation to use the TaON in contact with the Ag layer rather than a ZnS-SiO_2 layer and the other side could be in contact with a ZnS-SiO_2 layer.

On pages 6 and 7, the appellant argues that the plurality of recording layers separated by a transparent intermediate layer with both recording (bi)layers being

accessible from the same side is not taught. The appellant argues that the media of Takaoka et al. are read from both sides.

First the examiner points out that the claims are to the medium not its process of use and therefore the mode of accessing the recording layers from the same side need not be shown. It merely needs to be shown that the media is capable of operating in the claimed manner. The formation of two of the recording media rendered obvious by the combination of the teachings of Shuy et al. '160 and Sakaue et al. '587 and adhering them face to face through their protective layer (60) is rendered obvious by the teachings of Takaoka et al., specifically figure 10, which adheres these through adhesive/bonding layer 21. There is no indication that the bonding layer (21) is opaque and the examiner points out that the instant specification at page 19/line 4 describes the use of an adhesive layer. The use of a hot melt bonding resin is disclosed (4/64-65) in Takaoka et al. and the use of UV curing adhesives is disclosed by Sakaue et al. [0056] to adhere the protective layer (18) through which light passes (it is furthest away from the reflective layer). On this basis there is only reasons to expect that the bonding layer is transparent to light and that both recording layers can be accessed from either side. It may be a limitation of the optical head used by Takaoka et al., (limited range of focal depths) or the desire to readout both layers simultaneously (for speed) which motivated him to show only accessing from either side.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Martin J Angebranndt/

Martin J. Angebranndt

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